Helping Massachusetts Municipalities Create a Cleaner Energy Future

COMMONWEALTH OF MASSACHUSETTS

Charles Baker, Governor
Matthew Beaton, Secretary
Dan Burgess, Acting Commissioner

Establishing a Baseline to Become a Green Community

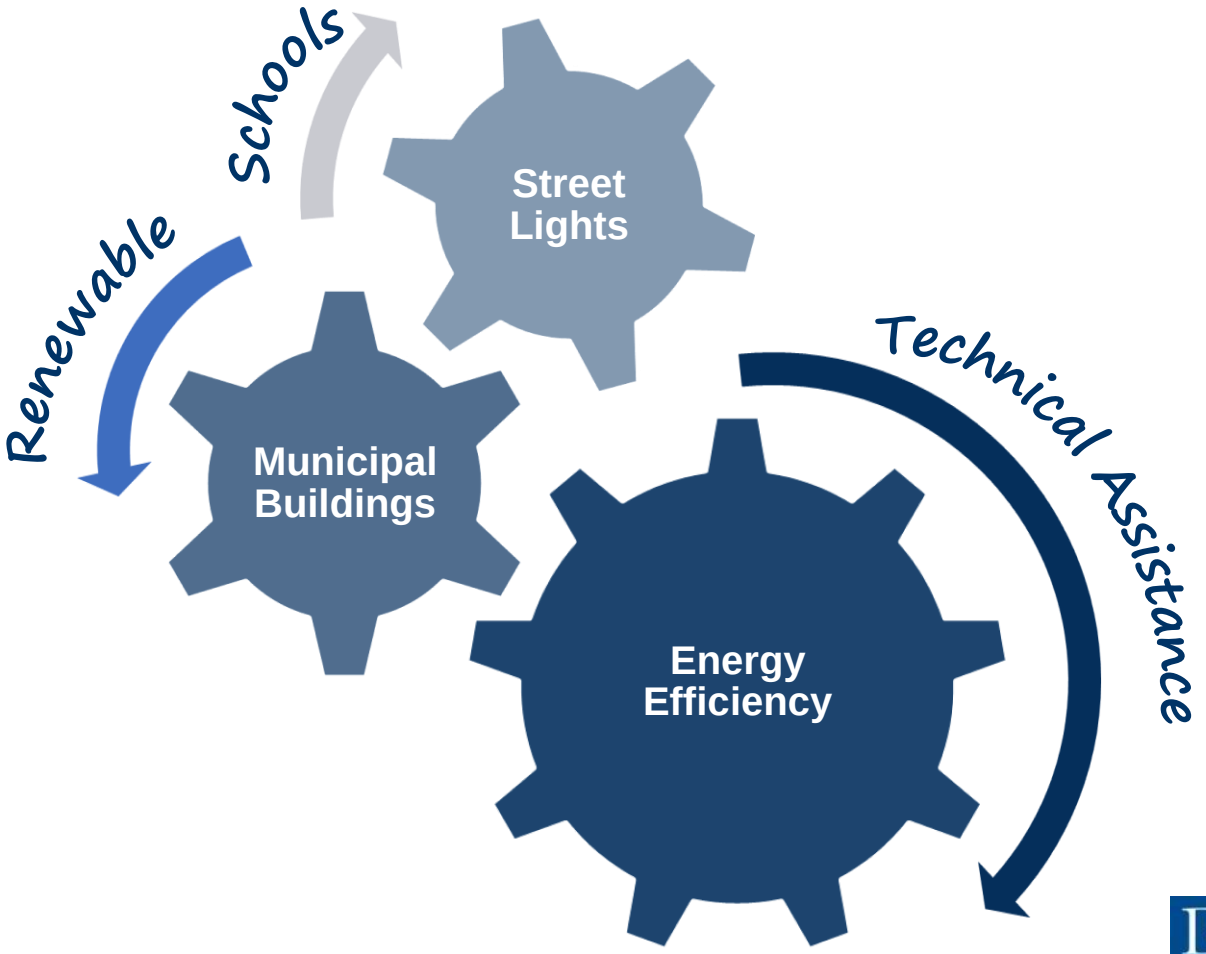
Seth Pickering
Aimee Powelka
Green Communities Division

Green Communities Webinar Series

April 9, 2015

Green Communities Division

The energy hub for ***all*** Massachusetts cities and towns, not just designated “Green Communities.”



Helping Massachusetts Municipalities Create A Cleaner Energy Future

Outreach - Regional Coordinators

- Regional Coordinators act as direct liaisons with cities and towns on energy efficiency and renewable energy activities
- Located at each of the DEP Regional Offices:

West – Springfield
Jim Barry
Jim.Barry@state.ma.us

Northeast – Wilmington
Joanne Bissetta
Joanne.Bissetta@state.ma.us

Central – Worcester
Kelly Brown
Kelly.Brown@state.ma.us

Southeast – Lakeville
Seth Pickering
Seth.Pickering@state.ma.us

Helping Massachusetts Municipalities Create A Cleaner Energy Future

Green Communities Division -
Programs & Resources for Municipalities

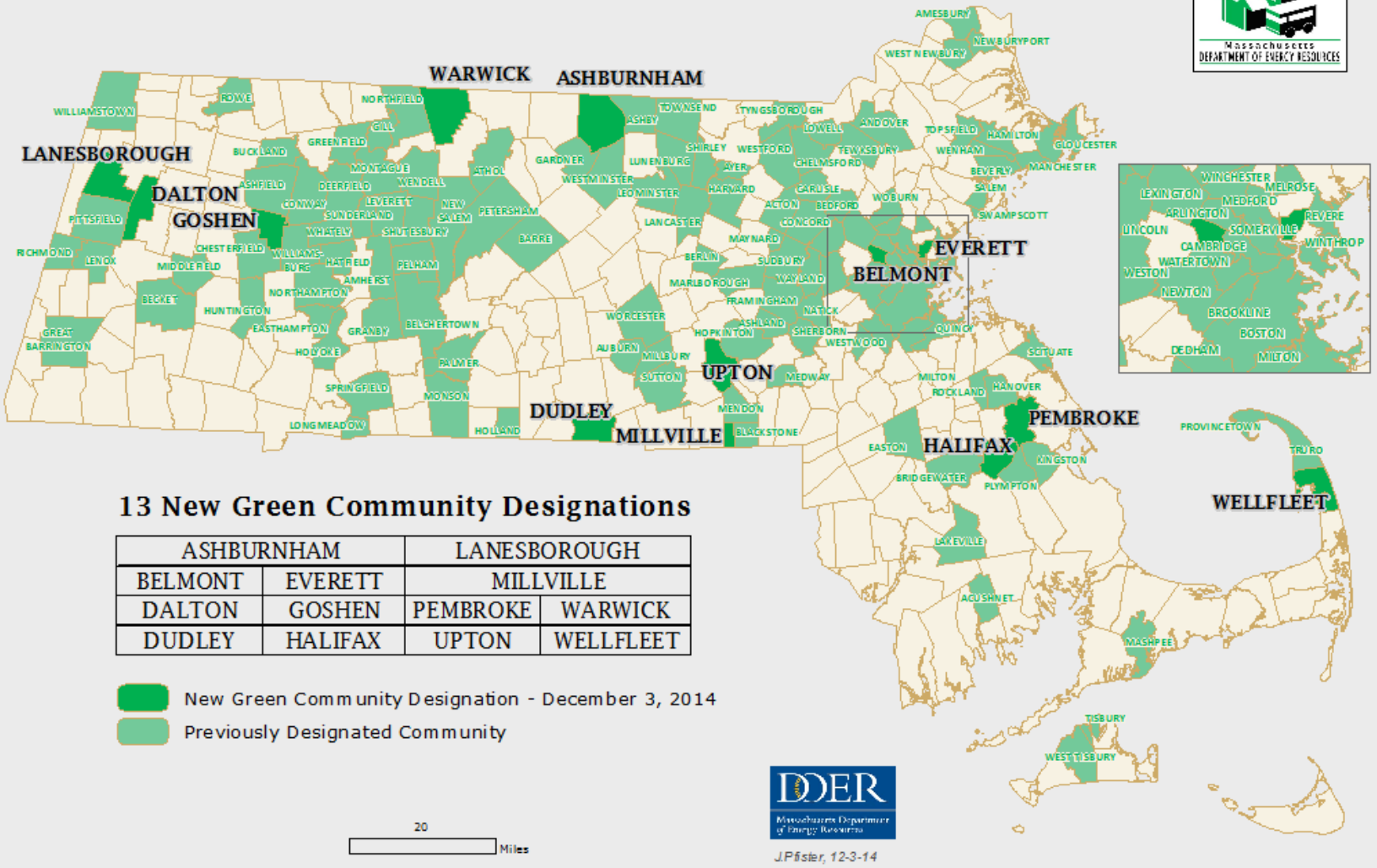
- Green Communities Designation and Grant Program
- MassEnergyInsight energy tracking and analysis tool
- Municipal Energy Efficiency Assistance
- Energy Management Services Technical Assistance
- Mass Municipal Energy Group (MMEG)
- Website filled with tools & resources: www.mass.gov/energy/greencommunities

Email updates via e-blasts – Sign up by sending an email to:

join-ene-greencommunities@listserv.state.ma.us

Helping Massachusetts Municipalities Create A Cleaner Energy Future

GREEN COMMUNITY DESIGNATIONS REACH ONE HUNDRED THIRTY-SIX



13 New Green Community Designations

ASHBURNHAM		LANESBOROUGH	
BELMONT	EVERETT	MILLVILLE	
DALTON	GOSHEN	PEMBROKE	WARWICK
DUDLEY	HALIFAX	UPTON	WELLFLEET

New Green Community Designation - December 3, 2014

Previously Designated Community

Helping Massachusetts Municipalities Create A Cleaner Energy Future

Designation & Grant Program

- Grant allocations based on a $125,000 base plus a population/per capita income formula
  - Maximum of $1 million
  - Range from $130,725 in Hatfield to $1 million for Boston
  - Granted approximately $40 million to implement energy efficiency and renewable technologies

- Projects include energy conservation measures, performance contracts, solar PV, incremental costs of hybrid vehicles.
  - **137 grants complete to date** (84 designation and 53 competitive)
    - Grants $25.4 million
    - Total Projects Costs $41.1 million; utility incentives $8.4 million
  - **Annual savings of $6.9 million**
    - Annual Energy Savings = Approximately 1,535 MA homes
    - Annual GHG Reduction = Nearly 3,138 cars off the road

Participate in the Clean Energy Revolution

Key Steps to Becoming a Green Community:

1. Organize an Energy Committee
2. Contact your Regional Coordinator
3. Get trained on MassEnergyInsight
4. Contact your utility about an audit
5. Talk to other municipalities in your region

Helping Massachusetts Municipalities Create A Cleaner Energy Future

Designation & Grant Program

Qualification Criteria: Designation

1. Adopt as-of-right siting for RE/AE generation, R&D, or manufacturing
2. Adopt expedited permitting process
3. **Create an Energy Reduction Plan (ERP) to reduce energy use by 20% in 5 years**
4. Purchase only fuel-efficient vehicles
5. Minimize life cycle cost in new construction → adopt the Stretch Code

Grant Funding

1. Energy Efficiency Projects
2. Renewable Energy Projects on municipal land

Poll Question

- Is your community considering applying to become a designated Green Community this fall?
  - Yes
  - No
  - Not Sure
  - Not Applicable

Establishing A Green Communities Energy Baseline

Helping Massachusetts Municipalities Create A Cleaner Energy Future

Who Is Included in the Baseline?

- **All** Municipal Divisions and Departments
  - Municipal Buildings
  - School Buildings
  - Municipal & School Vehicle Fuel Use
  - Street and Traffic Lights
  - Drinking Water & Waste Water Treatment Plants
  - Pumping Stations
  - Open Space = Parking Lots, Cemeteries, Parks & Athletic Fields

Enterprise Fund Divisions/Departments

- Enterprise Funds
  - May be excluded from the Baseline/ERP *if* they have a separate governing body or are third-party operated
  - DOER strongly encourages that these operations be **included** in the Baseline/ERP
    - *If included, they are eligible for grant funding*

Regional School Districts

- Elementary Schools are usually included in the Green Community Baseline and ERP
- Regional Middle & High Schools with students from multiple towns may be included in GC Designation Applications to become eligible for grant funding
- To be included in the Baseline a Regional School must:
  - Establish the individual school's Energy Baseline
  - Use the municipality's funding assessment percentage to determine the portion that will become part of the Green Community municipality's Energy Baseline
    - Funding assessment percentage does not affect amount of grant funding available to a school or regional school district; town's choice
  - RSD must adopt the ERP and Fuel Efficient Vehicle Policy

Municipality Homework

- Contact **all** Departments
  - Outreach and information sharing to all departments starts with:
    - Gathering energy use information
    - Education and support around vehicle fuel usage
    - Identifying energy efficiency opportunities
    - Promoting potential grant fund availability
  - The local Bill Paying Accounting/Cost Centers are the best sources of Baseline energy information for both usage and costs

What Energy Usage is included in the Baseline?

Baseline Energy Usage = From What?

- Buildings
  - Electricity & Fossil Fuel
- Vehicles
  - Gasoline Usage
  - Diesel Fuel Usage

- Street Lights, Traffic Lights & Open Space
  - Electricity
- Water Treatment Plants/Municipal Services
  - Electricity & Fossil Fuel

Poll Question

- What is the energy unit used in Green Communities' energy baselines?
  - kWh
  - MMBtu
  - Both of the above
  - Joules

Trick Question

- BOTH kWh and MMBtu are used in creating an energy baseline, but the baseline is measured in MMBtu.

- **MMBtu** stands for one million British Thermal Units (Btu). A Btu is a measure of energy content. It is the amount of heat required to increase the temperature of one pound of water by one degree Fahrenheit.

- MMBtu is a common unit of measurement applicable to all energy types

How is the Baseline Measured & Calculated?

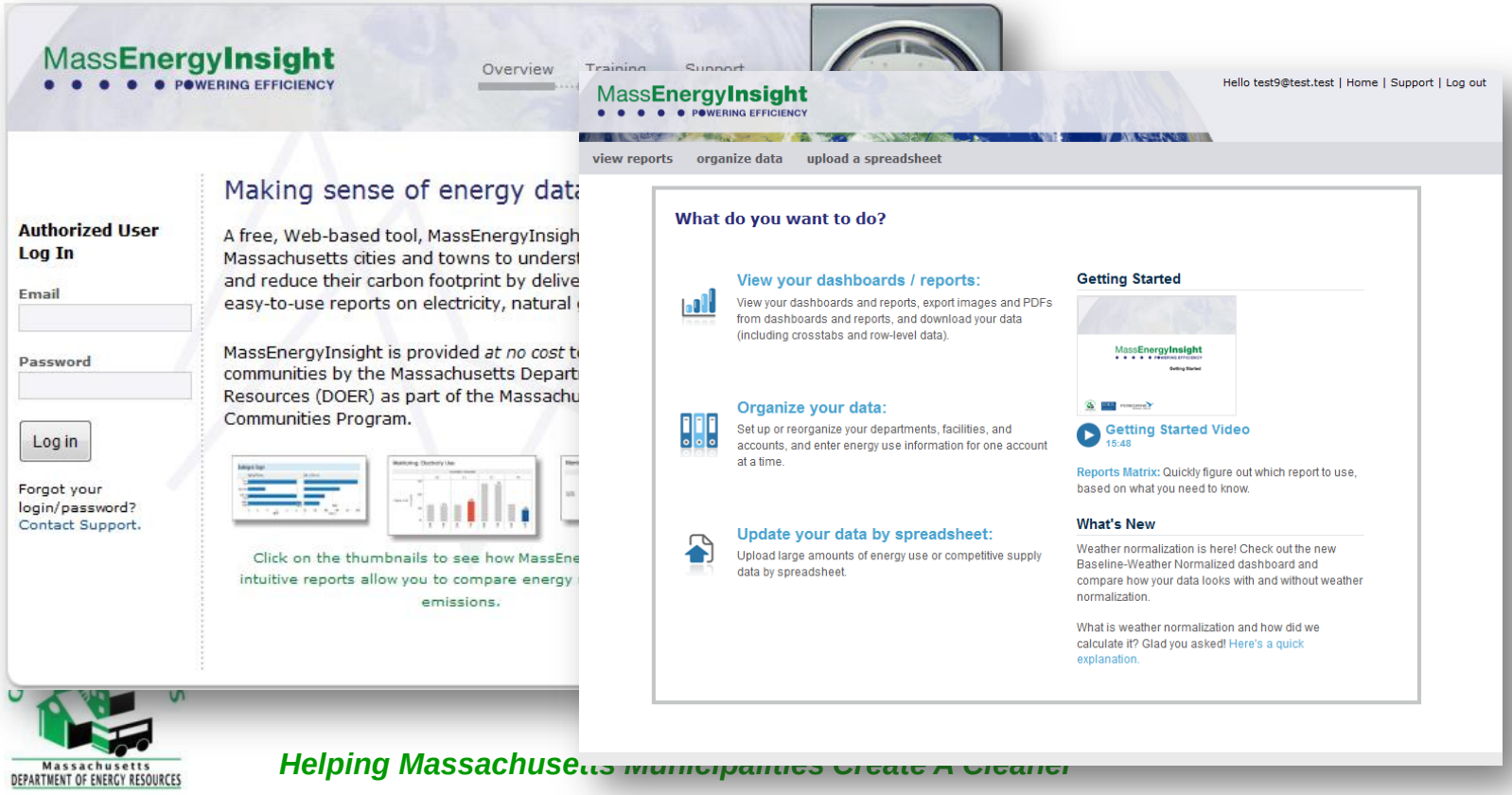
- The energy use baseline inventory must be provided in MMBtu (Million British Thermal Units).
- Use the following tools:
  - DOER's MassEnergyInsight (MEI) (www.massenergyinsight.net)
  - Energy Star Portfolio Manager
  - School Dude software
  - Other tools proposed by the municipality and deemed acceptable by DOER
- Preferred method is MEI for a Green Communities Designation Application

Poll Question

- Is your municipality currently using MEI?
  - Yes
  - No
  - Don’t know

MassEnergyInsight is…

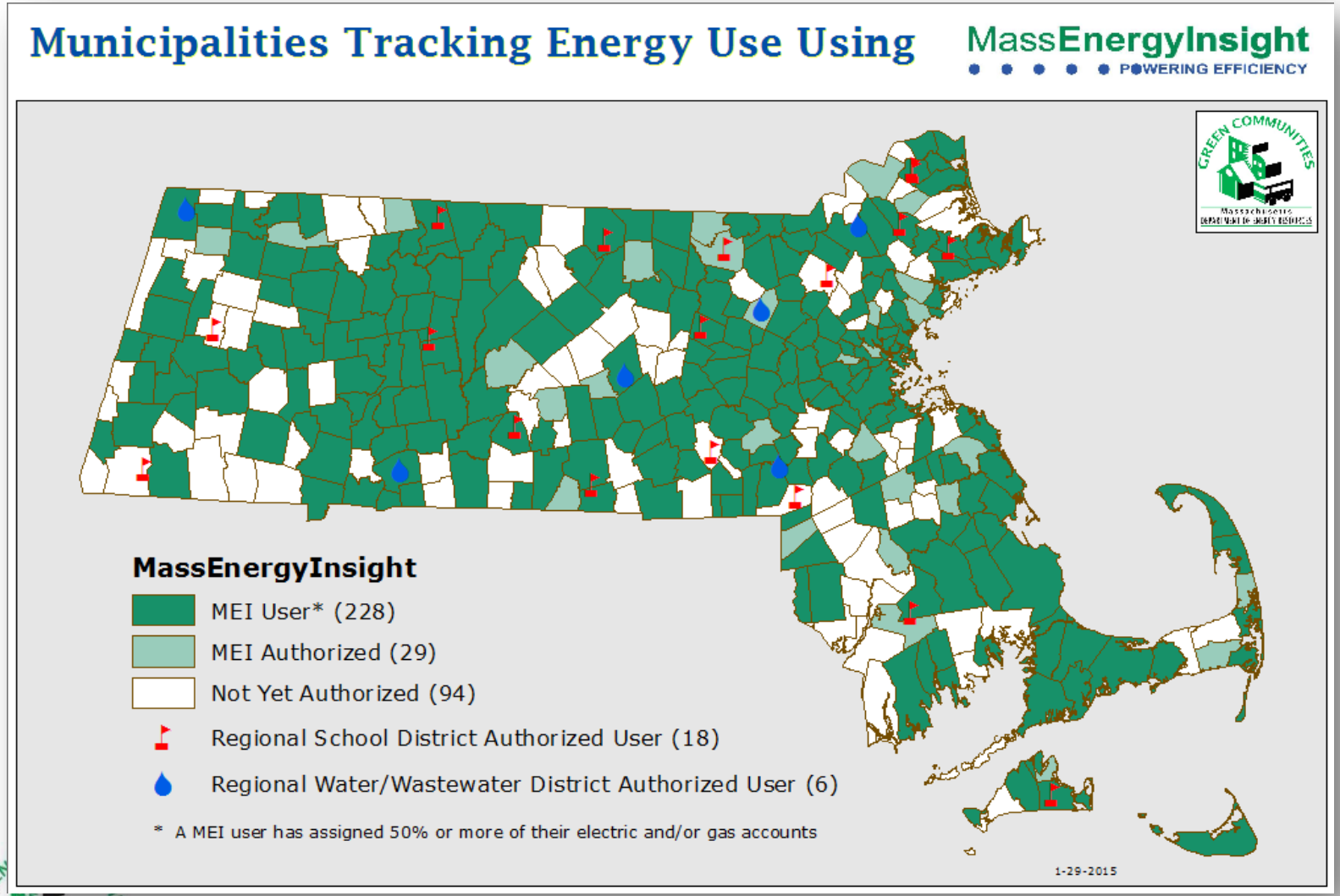
A web-based tool fine-tuned for municipal energy data management, analysis, and reporting.



Massachusetts
DEPARTMENT OF ENERGY RESOURCES

Helping Massachusetts Municipalities Create A Cleaner

Join the MEI Crowd



Massachusetts DEPARTMENT OF ENERGY RESOURCES

Helping Massachusetts Municipalities Create A Cleaner Energy Future

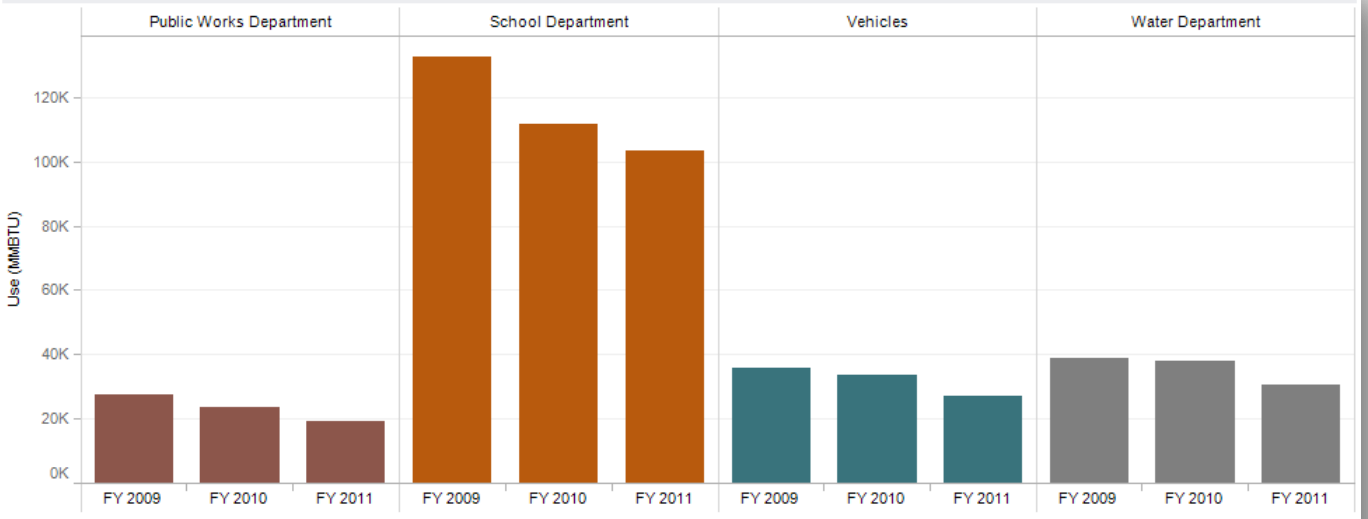
DOER Massachusetts Department of Energy Resources

Baseline Dashboard

Baseline Dashboard

Overall Use (with % Difference from Baseline Year)

Use by Department



Drill down by Facility Category (showing Use (MMBTU))

Hover over Facility Category and Subcategory and click the plus or minus signs to expand and collapse the table.

Facility Category	FY 2009	FY 2010	FY 2011
Building	175,669	149,717	134,810
Open Space	1	3	3
Street/Traffic Lights	17,435	17,478	13,848
Vehicle	35,953	33,678	26,952
Water/Sewer	38,027	37,030	29,735

Drill down by Department (showing Use (MMBTU))

Hover over Department, Complex, etc. and click the plus or minus signs to expand and collapse the table.

Department	FY 2009	FY 2010	FY 2011
Public Works Department	27,575	23,743	19,300
School Department	132,570	111,626	103,209
Vehicles	35,953	33,678	26,952
Water Department	38,920	37,970	30,644

GREEN COMMUNITIES
Massachusetts
DEPARTMENT OF ENERGY RESOURCES

Helping Massachusetts Municipalities Create A Cleaner Energy Future

DOER
Massachusetts Department of Energy Resources

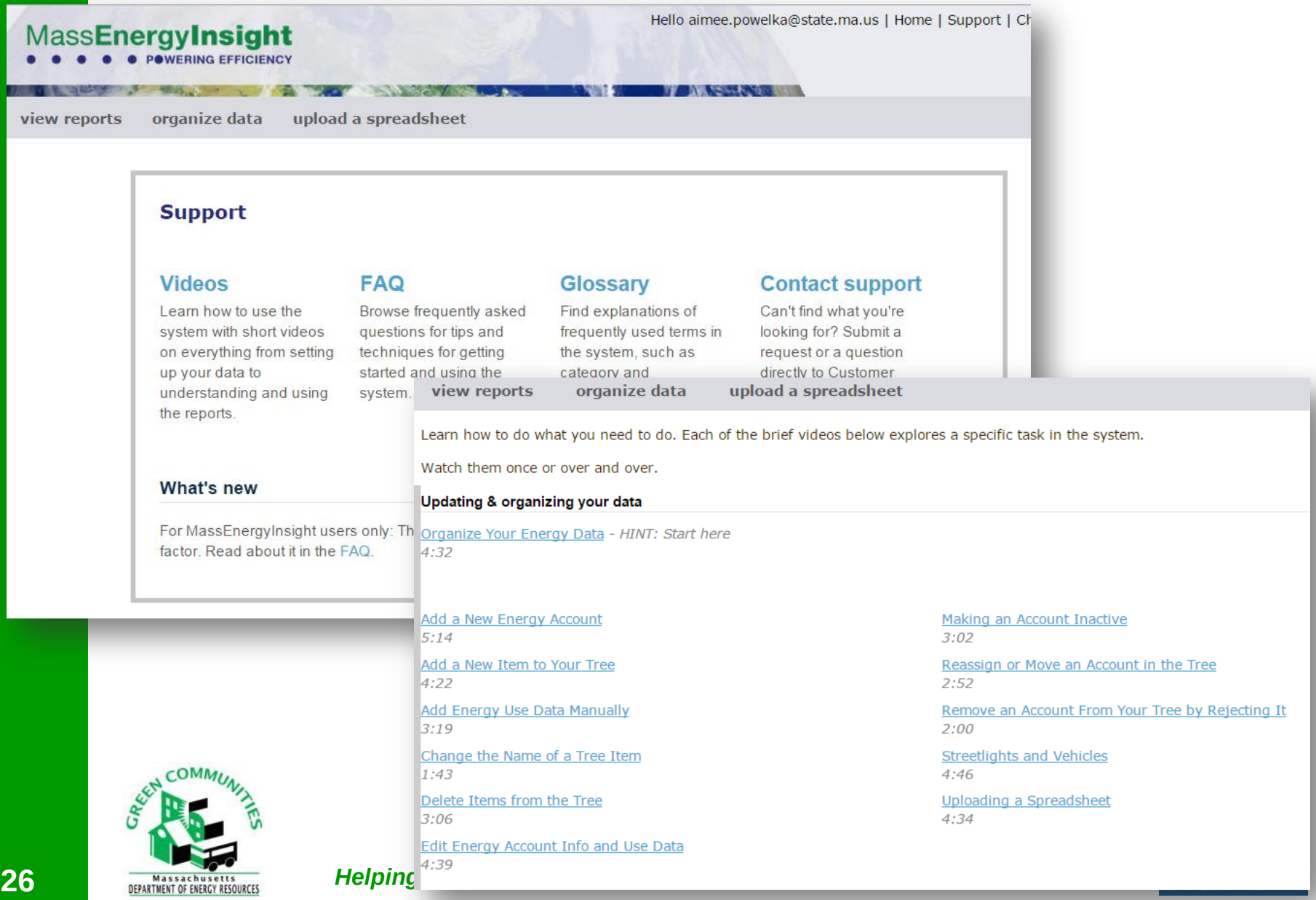
MEI Energy Baseline Process

- Identify account numbers and energy usage
- Become MEI authorized
- Watch training video(s)
- Set up “tree” structure of facilities and departments (optional)
- Assign accounts to facilities
- Assign category and subcategory to facilities
- Load gasoline, diesel, propane, oil usage
- Ensure electric and gas usage has loaded

MEI Authorization Documentation

- Authorization Documents on Letterhead
  - Municipality = Signed by chief elected or appointed official
  - Schools = Signed by chief appointed official
- Municipality/Schools Data Sharing Documents on Letterhead
  - Municipality = Signed by chief elected or appointed official
  - Schools = Signed by chief appointed official
- Examples
  - Available from your Regional Coordinator

MEI Training = Support Videos

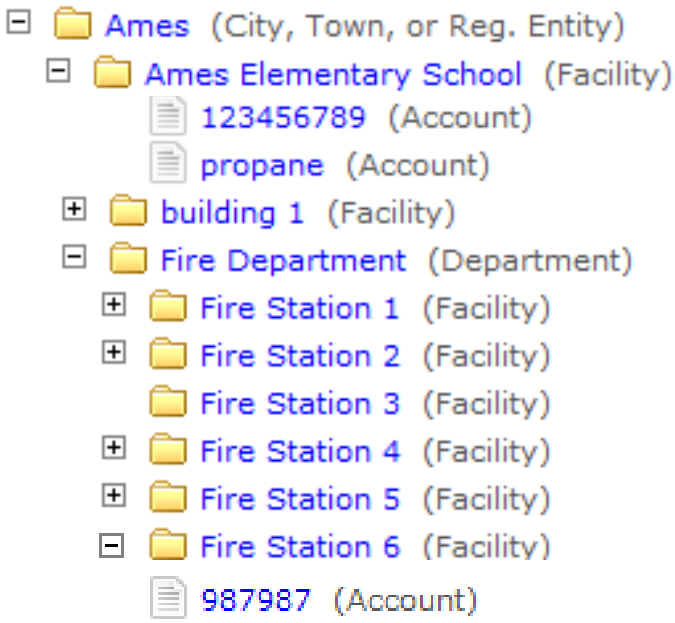


Helping

MEI Set-Up

- Think about how you wish to use your data
  - Reporting to each department?
  - Only reporting to DOER?
  - Both?
- This will determine how to set up your accounts in MEI
- All accounts need to be assigned to a Category in MEI

Setting Up Your MEI Accounts

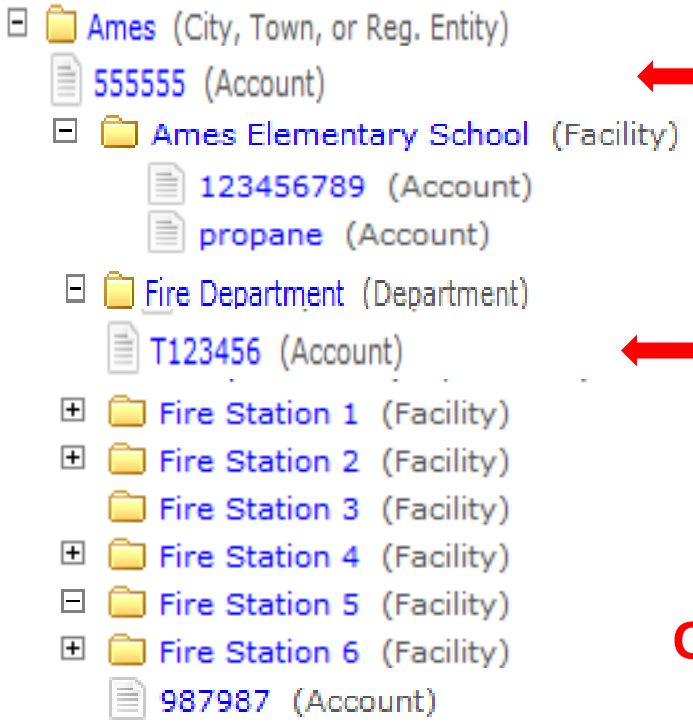


No department reporting

Department-level reporting

Goal: All accounts under a facility

Making MEI Information Useful



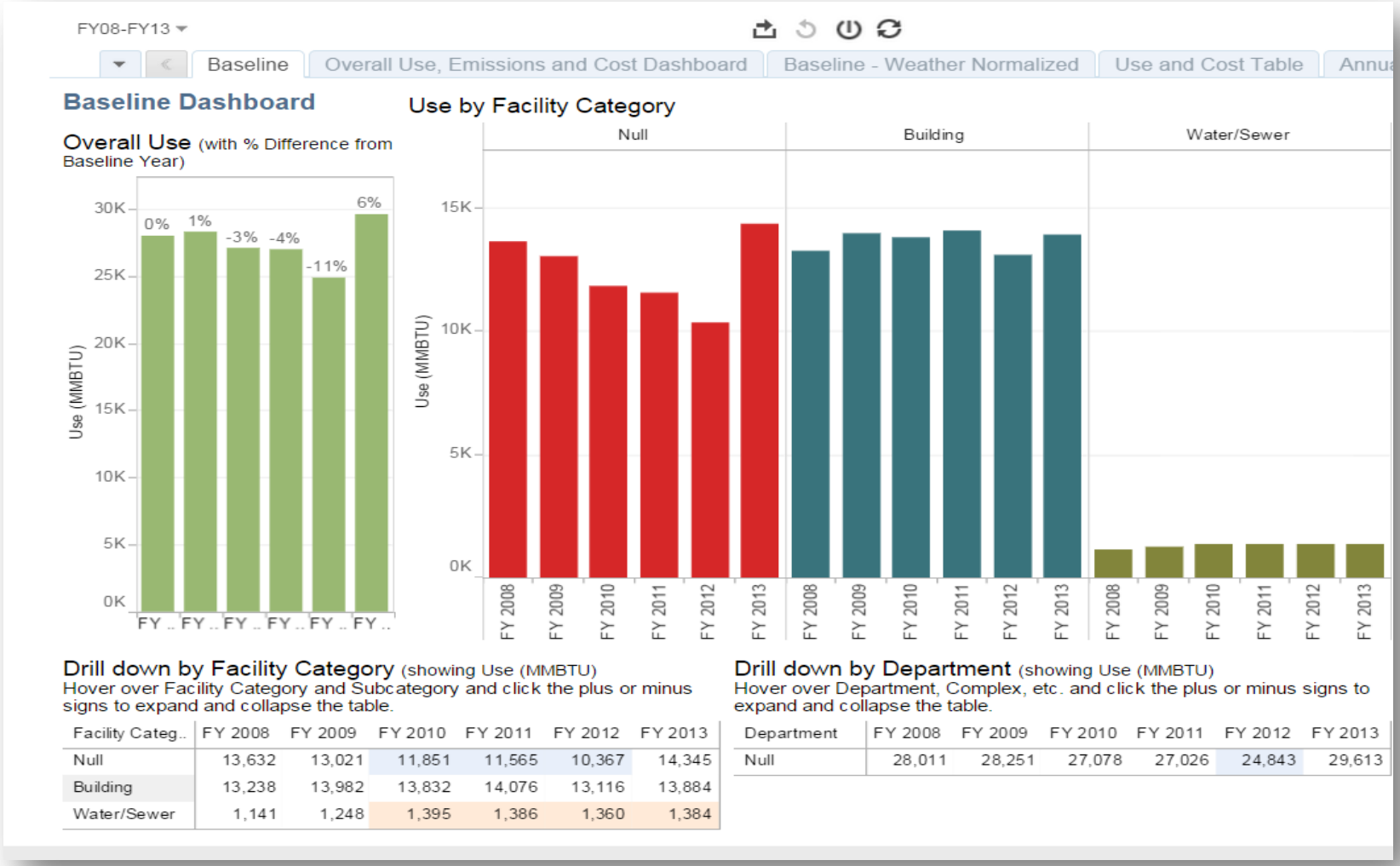
Account not under facility

Account not under facility

Goal: All accounts under a facility

Helping Massachusetts Municipalities Create A Cleaner Energy Future

Null Data = Information Not Useful



Drill down by Facility Category (showing Use (MMBTU))
Hover over Facility Category and Subcategory and click the plus or minus signs to expand and collapse the table.

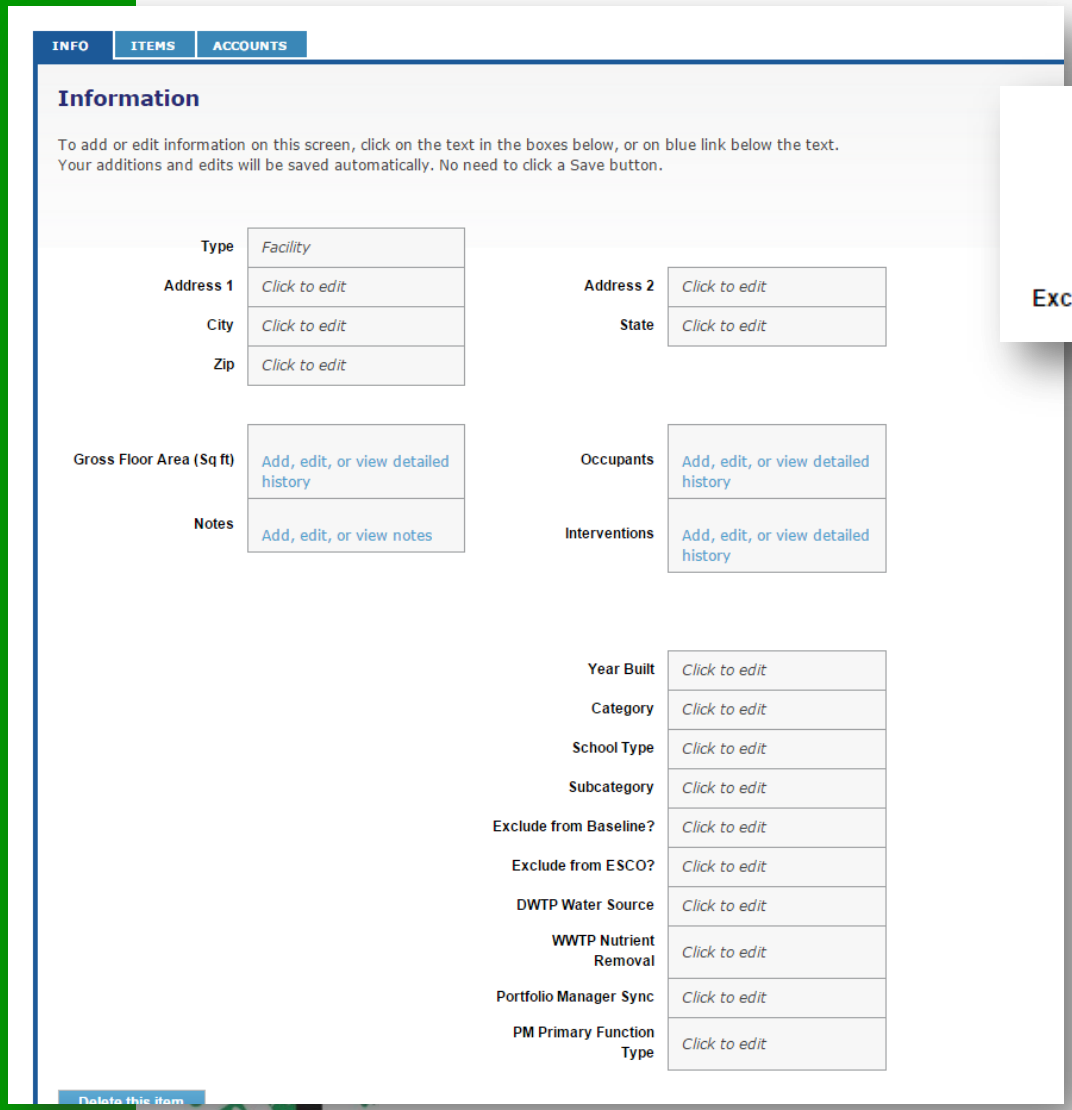
Facility Categ..	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Null	13,632	13,021	11,851	11,565	10,367	14,345
Building	13,238	13,982	13,832	14,076	13,116	13,884
Water/Sewer	1,141	1,248	1,395	1,386	1,360	1,384

Drill down by Department (showing Use (MMBTU))
Hover over Department, Complex, etc. and click the plus or minus signs to expand and collapse the table.

Department	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Null	28,011	28,251	27,078	27,026	24,843	29,613

Helping Massachusetts Municipalities Create A Cleaner Energy Future

Assigning a Facility Category



- Assign Category
- Subcategory options depend upon category
- See Glossary for help
- Exclude from Baseline –

  usage you would like to track and monitor, but is not included in your energy baseline, such as rental properties

Setup Completeness Dashboard

This table shows you how many facilites you have created by facility Category and Subcategory. To expand or collapse the table, hover over the category header or the name of a specific item, then click the plus (+) or minus (-) symbols.

Facility Counts by Type

Facility Category	FY 2008	FY 2009	FY 2010	FY 2011
Building	13	13	13	13
Open Space	1	1	1	1
Water/Sewer	1	1	1	1
Grand Total	15	15	15	15

These tables show you work you still need to do to set up your city, town or district. If there's nothing in a table, then you've completed that task! Click on an item name to go directly to that item and update it. The item will open in another browser window or tab. You can then make edits which will appear in the reports the next business day.

Assign these accounts

These accounts have not been assigned to a complex, building or unit. Assign these accounts to ensure their data is reported properly.

Assign a category to these items

Buildings listed here may be improperly categorized or excluded in the reports.

- Transfer Station
- Fire Headquarters
- Kennel

Assign a subcategory to these items

Buildings listed here will not be able to be comparedto similar building types.

- Salt Barn
- Transfer Station
- Fire Headquarters

Enter a square footage for these buildings

Buildings listed here will not show properly in the Buildings to Target report.

- Samplevill..

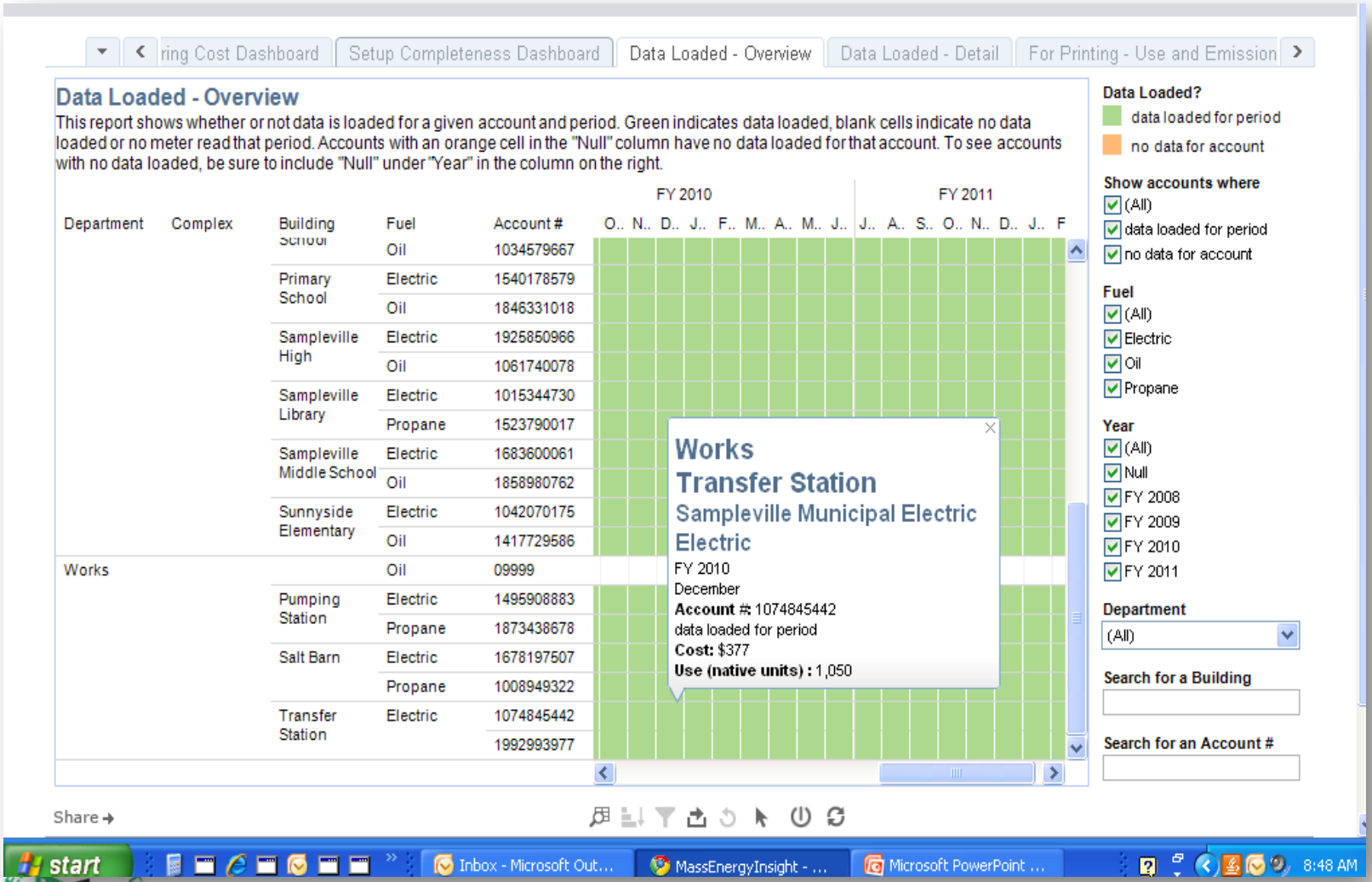
Assign these schools a School Type

This will allow you to compare them to similar school types in the School Benchmarks report.

Adding Your Energy Data

- Only need the utility account number assigned – usage will be loaded for you
  - Electricity
  - Natural gas
- Usage you need to load
  - Oil
  - Propane
  - Gasoline
  - Diesel
- Type into MEI or load a spreadsheet
- Competitive Supply for accurate cost

Check - Is Your Usage in MEI?



Helping Massachusetts Municipalities Create A Cleaner Energy Future

Once Upfront Work Is Done….
Energy Tracking is Much Easier

- Share the success of your clean energy projects
- Build communication around energy use and budgets
- Monitor your overall energy use and costs
- Identify inefficient facilities
- Compare your facilities to your peers
- Report to DOER

When?
What year can be the Baseline Year?

- For a Fall 2015 application you have the following choices:
  - FY2013
  - CY2013
  - FY2014
  - CY2014
  - FY2015

Helping Massachusetts Municipalities Create A Cleaner Energy Future

Which Year to Choose?

- Which Year Depends Upon:
  - How much time you would like to pursue the 20% reduction using grant funds
    - FY13 baseline; ERP timeframe is FY14-FY18
    - FY14 baseline: ERP timeframe is FY15-FY19
    - Designation FY16
  - Any prior energy efficiency projects completed
    - Amount of reductions from those projects
- Contact your regional coordinator to make sure the logic for your baseline is sound

Example: Baseline Year Choice

- FY13 28,000 MMBtu (20% is 5,600 MMBtu)
- FY14 32,000 MMBtu (20% is 6,400 MMBtu)
- Energy efficiency projects in spring 2013 (FY13)
  - Lighting upgrade in all school
    - projected energy savings is 150,000 kWh
      - 512 MMBtu = 1.8% of FY13
  - Boiler replacement in one school is 20,000 therms
    - 2,000 MMBtu = 7.1% of FY13
  - If only lighting, town may wish to use FY14 baseline to gain more time after designation to reduce usage
  - If only boiler, or both boiler and lighting, town may wish to use FY13 baseline because they believe usage will decrease in future (perhaps FY14 was a tough winter)

Contact Information

Seth Pickering, Southeast Regional Coordinator

seth.pickering@state.ma.us

Aimee Powelka, Municipal Efficiency Coordinator

aimee.powelka@state.ma.us

Web Site: www.mass.gov/energy/greencommunities